Aug. 31, 1948. B. S. THOMPSON 2,448,402

HOT WIRE CLAMP

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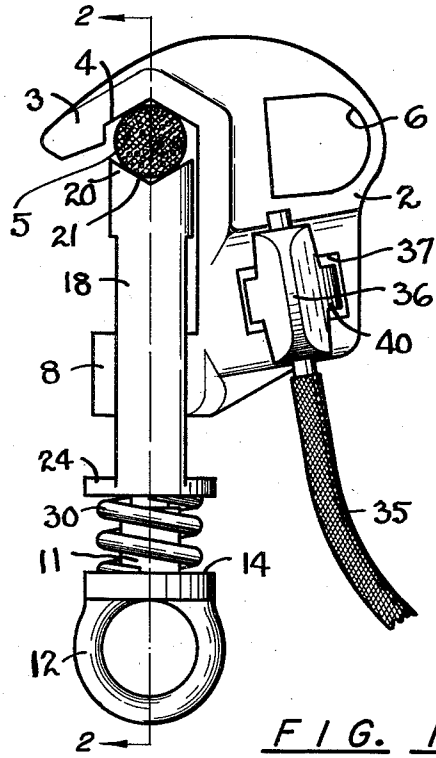


FIG. 1.

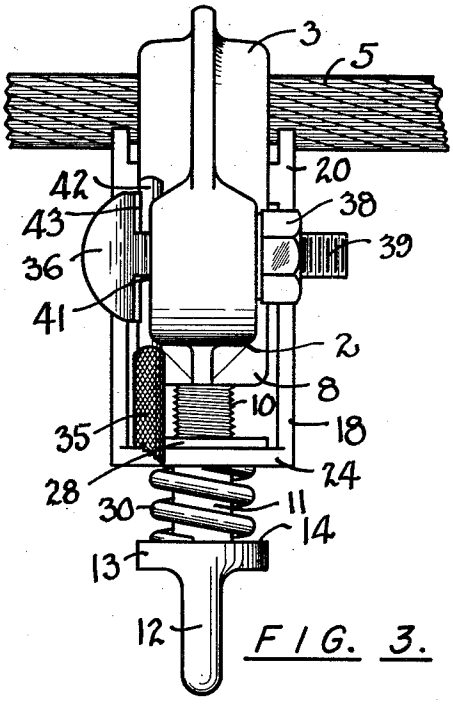


FIG. 3.

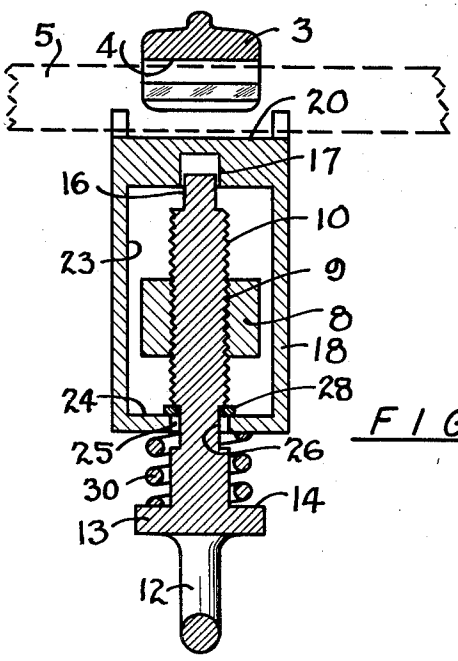


FIG. 2.

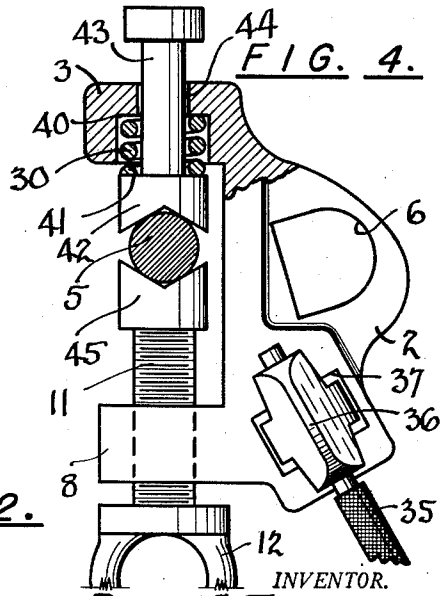


FIG. 4.

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HOT WIRE CLAMP

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2 Claims. (Cl. 173—273)

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The invention relates to an improvement in hot wire clamps of the type utilized in making a connection to an electrical conductor so as to make a branch connection therefrom.

In clamps of the type herein concerned, great difficulty has been encountered in the clamp becoming loosened from the conductor due to vibration as well as expansion and contraction of the metal of the conductor and the clamp.

The present invention contemplates a clamp which will resiliently engage the conductor cable so as to insure a firm grip which will automatically accommodate itself to the expansion and contraction of the parts while maintaining a firm clamping action.

It is one of the objects of the invention to provide a hot wire clamp wherein one of the jaws of the clamp is resiliently urged into clamping position.

Another object of the invention is to provide a hot wire clamp having an adjustable head which is spring pressed into clamping position.

Still another object of the invention is to provide a hot wire clamp where the clamping head is controlled by the action of a spindle relative to which it has limited movement so that a spring may be provided to urge the head into clamping position.

Other and further objects of the invention will be readily apparent when the following description is considered in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation of the hot wire clamp in position on a conductor cable;

Fig. 2 is a sectional view taken on the line 2—2 and illustrating the construction of the clamp head; and

Fig. 3 is an edge elevation illustrating the arrangement of the branch connection.

Fig. 4 is a side elevation of a modified form of clamp.

In Fig. 1, a body 2 has been illustrated which is preferably formed of brass or other suitable conducting material which is sturdy and rigid so as to withstand the stresses of the clamp action. This body has an extending jaw 3 thereon which is recessed at 4 in order to receive the cable or conductor 5 to which it is to be clamped. This body has an opening 6 to permit ready handling thereof and also carries a stud or lug 8 which projects from the body in the same plane as the jaw 3, as best seen in Fig. 2.

This stud or lug 8 is threaded at 9 and receives the threaded portion 10 of a spindle 11. The spindle is provided with a handle or eye 12 and

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has an outstanding flange 13 to provide a shoulder 14. The forward end of the spindle 11 is reduced to provide a projection 16 arranged to be received in an opening 17 in the clamping head 18. This head 18 is in the form of an open frame having the contacting head 20 thereon which is grooved at 21 so as to bear against the cable or conductor 5, as seen in Fig. 1. The open portion 23 of the head is arranged to straddle the stud or lug 8, as seen in Fig. 2, and the head has a base portion 24 having an opening 25 therein through which the spindle 11 projects. The spindle, however, is flattened on the sides at 26 so that the opening 25 is slidable relative to the spindle for the length of the flattened area 26. In order to keep the head from sliding forward onto the threaded area 10 of the spindle, a stop washer 28 having a non-circular opening therein to fit the flattened area 26 is provided. This washer serves to retract the head 18 when the spindle is unscrewed.

In order to resiliently urge the head against the conductor 5 a relatively strong coil spring 30 is disposed about the spindle and abuts the shoulder 14 and the base 24 of the head.

In operation in attaching the head the spindle will be unscrewed so as to retract the head and the jaw 3 is then passed about the cable. The spindle is then screwed forwardly and carries the head with it until the head engages the cable. Further turning action of the spindle causes it to advance in the stud or lug 8 and when the forward movement of the head is arrested by engaging the cable any desired compression can then be placed upon the head by continuing the turning movement of the spindle. Fig. 2 shows this arrangement and it will be noted that the projection 16 has not as yet reached the base of the recess 17 and the base 24 has not reached the base of the flattened area on the spindle so that if desired additional compression could be applied by additionally turning the spindle to further compress the spring 30.

With a construction of this sort, it seems obvious that the cable 5 is gripped with a resilient action so that the head will yield or take up any expansion or contraction of the metal of the cable or of the clamp itself. The resilient action also tends to absorb any vibration and prevents loosening of the clamp relative to the cable.

In order to attach the branch connection 35 to the clamp, a bolt 36 is shown as having been passed through the opening 37 in the side of the body 2, and is arranged to be affixed in position by having the nut 38 turned upon the threaded area 39. As

seen in Figs. 1 and 3, this bolt 36 has a peculiarly shaped head, having the side wings 40 fitting into the recess 37 to prevent rotation and has an opening 41 therethrough to receive the conductor wire 42 of the branch line 35. It seems obvious that when the nut 38 is turned tightly the shoulder 43 on the head of the bolt will be drawn against the wire 42 so as to firmly clamp the wire of the branch line in position.

Fig. 4 shows a modified form of the invention wherein the spring 30 has been removed from around the spindle 11 and has been disposed in a recess 40 in the jaw 3 and is arranged to abut against a shoulder 41 on the movable portion 42 of a jaw which has a spindle 43 slidable in an opening 44 in the jaw 3 of the body. In this manner the wire or cable 5 will be securely clamped as described in connection with the other figures. The clamping head 18 has been modified somewhat as seen at 45 to include merely an enlarged portion on the threaded spindle 11. The remaining structure is the same as that previously described.

Broadly, the invention contemplates a hot wire clamp which will resist vibration and will maintain a tight grip to adapt itself for expansion and contraction of the parts.

What is claimed is:

1. A hot wire clamp comprising a body of conducting material, a jaw and a lug each extending from said body in the same plane and direction, said jaw and said lug being spaced apart somewhat, a spindle, means adjustably securing said spindle to said lug for movement toward and away from said jaw, a head straddling said lug and mounted for limited movement along said spindle, one end of said head providing a movable jaw extendable to adjacent said body jaw, and resilient means based on said spindle and bearing against the opposite end of said head to urge said head to clamp the hot wire between its movable jaw and said body jaw upon adjusting said spindle toward said body jaw.

2. A hot wire clamp comprising a body of conducting material, a jaw and a lug each extending from said body in the same plane and direction, said jaw and said lug being spaced apart somewhat, a spindle, means threadedly securing said spindle to said lug for movement toward and away from said jaw, a head straddling said lug, said head having a bearing recess in one end into which one end of said spindle slidably extends, the shank of said spindle slidably extending through the other end of said head thereby mounting said head for limited movement along said spindle, said first mentioned end of said head providing a movable jaw extendable to adjacent said body jaw, and resilient means based on said spindle and bearing against said head to urge said head to clamp the hot wire between its movable jaw and said body jaw upon threading said spindle toward said body jaw.

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